



Letter to the Editor: Quantitative evaluation of COVID-19 pneumonia severity by CT pneumonia analysis algorithm using deep learning technology and blood test results

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Dear Editor, we would like to share ideas on “Quantitative evaluation of COVID-19 pneumonia severity by CT pneumonia analysis algorithm using deep learning technology and blood test results” Okuma et al. concluded that “The mean HU total of the whole lung, determined by the AI algorithm, and eGFR reflect the severity of COVID-19 pneumonia [1].” This algorithm is useful but there are some points for consideration. First, it is necessary to have a good control on interference factors. Since the model is based on many blood test parameters. The quality control of blood test is an important issue. For example, GFR might be aberrant or falsely elevated due to pre-analytical interferences [2]. The measurement technique of serum creatinine is uniform as an enzymatic method in Japan, hence, the contaminated data combined enzymatic method and Jaffe method should not occur. Nevertheless, this is a cross-sectional study performed in a single institute, not a multi-center study. The ‘eGFR’ was calculated based on sex, age, and serum creatinine according to the local clinical guideline of chronic kidney disease. Although there is a significant variability existed in a multi-center study for serum creatinine measurements, there could not be inter-laboratory variability existed in this single-center study. The left consideration is only on intra-laboratory variability, which should be represented by precision analysis data. Additionally, it is necessary to consider possible interference from confounding factors in the interpretation of prediction from the algorithm. In this study, the authors conducted an ordinal logistic analysis as a multivariate analysis to determine significant parameters to predict the severity of COVID-19 pneumonia. Hence, it

should have eliminated the effect of confounding factors among various studied parameters. Moreover, the other confounding factors such as factors in specimen collection and processing should still be mentioned.

Declarations

Conflict of interest None.

References

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